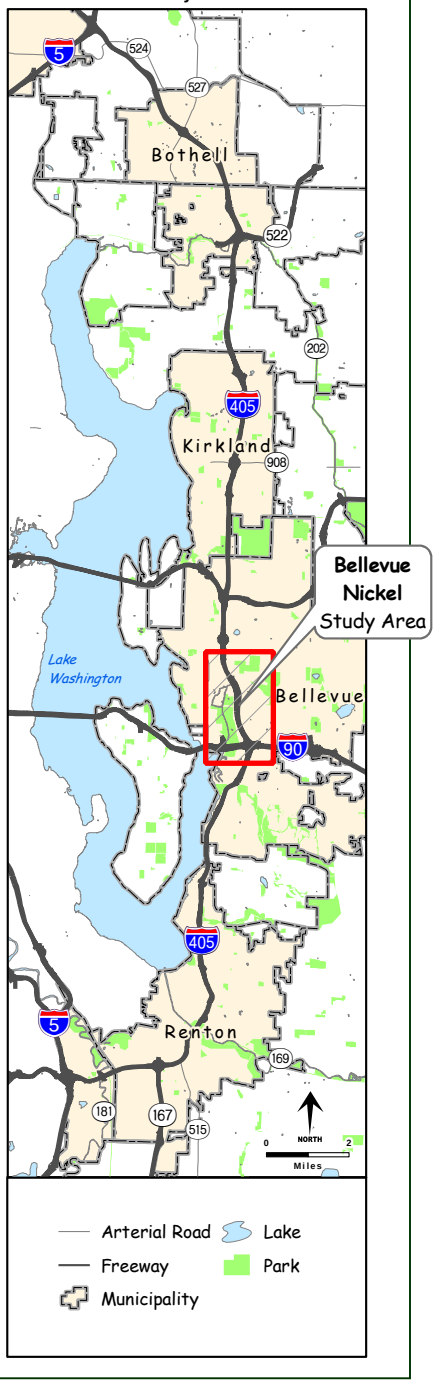
I-405 Bellevue Nickel Improvement Project
I-90 to Southeast 8th Street

INTERSTATE 405 Corridor Program
Congestion Relief & Bus Rapid Transit Projects

UPLAND VEGETATION AND WILDLIFE
DISCIPLINE REPORT

January 2006

I-405 Project Area



Washington State Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

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Exhibits

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Glossary

best management practices (BMPs)	BMPs are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion control measures and construction management to minimize traffic disruption. Please see Appendix A for a complete list of BMPs.
coniferous forest	Forests dominated by conifers, which are trees that are usually evergreen and bear cones.
cover types	Cover types describe all natural and modified land covers so that the total area of all cover types equals the area under consideration.
deciduous forest	Forests dominated by deciduous trees, which are trees that are generally broad- leaved and lose their leaves in winter.
diameter at breast height (dbh)	The diameter of a plant stem (e.g., tree trunk) as measured at a height of 4.5 feet above ground level.
herbaceous	Plants that have little or no woody tissue with stems that typically die back each year. Plants persist for one growing season (annuals) or more than one year (perennials).
home range	The primary area for an animal's normal activities, which the animal may defend against intruders of the same species.
mesic	Moderately moist.
non-native plant	A plant that is not native to the local area.
overstory	The layer of trees in a forest canopy.
snag	The remains of a dead but still standing tree; provides nesting and perching habitat for many wildlife species.
stormwater detention ponds	Ponds constructed to hold stormwater runoff.
understory	The plants of forest undergrowth; an underlying layer of low vegetation.
upland vegetation	Vegetation associated with dry areas away from water or wetlands; vegetation that is not located within the area influenced by a body of water.

Acronyms and Abbreviations

BMPs	best management practices
BNSF	Burlington Northern Santa Fe
CFR	code of federal regulations
dbh	diameter at breast height
DNR	Department of Natural Resources
EA	environmental assessment
EIS	environmental impact statement
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographical Information Systems
HOV	high-occupancy vehicle
I-405	Interstate 405
I-90	Interstate 90
NB	northbound
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Association
PHS	priority habitats and species
ROD	record of decision
ROW	right of way
SB	southbound
SE	southeast
SEPA	Washington State Environmental Policy Act
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

Acronyms and Abbreviations

WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WNHP	Washington Natural Heritage Program
WSDOT	Washington State Department of Transportation

Introduction

In 1998, the Washington State Department of Transportation (WSDOT) joined with the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Central Puget Sound Regional Transit Authority (Sound Transit), King County, and local governments in an effort to reduce traffic congestion and improve mobility in the Interstate 405 (I-405) corridor. In fall 2002, the combined efforts of these entities culminated in the *I-405 Corridor Program Final Environmental Impact Statement (EIS)* and *FHWA Record of Decision (ROD*).

The ROD selected a project alternative that would widen I-405 by as many as two lanes in each direction throughout its 30-mile length. The ultimate configuration of the selected alternative includes buffers separating general-purpose lanes from parallel high-occupancy vehicle (HOV) lanes (potentially used by future high-capacity transit). The design also allows for expanded "managed lane" operations along I-405 that could include use of HOV lanes by other user groups, such as trucks.

In 2003, the Washington State legislature approved a statewide transportation-funding plan called the "nickel package." The nickel package provided funding for congestion relief projects in three critical traffic hotspots along the I-405 Corridor: Renton, Bellevue, and Kirkland. The Bellevue Nickel Improvement Project is one of several projects now moving forward as part of a phased implementation of the I-405 Corridor Program. Exhibit 1 shows the location of the Bellevue Nickel Improvement Project.

In 2003, the Washington State legislature approved a statewide transportation-funding plan called the "nickel package." The nickel package provides funding for congestion relief projects in three critical traffic hotspots along the I-405 Corridor, including Bellevue.

Traffic moving along I-405

Exhibit 1. Project Vicinity Map

In keeping with the direction established in the Final EIS and ROD, we are preparing a National Environmental Policy Act (NEPA) Environmental Assessment (EA) that focuses on project-level effects of constructing and operating the Bellevue Nickel Improvement Project.

The Environmental Assessment will describe new project changes, information, effects, or mitigation measures, but the assessment will not revisit the alternatives, impacts, and mitigation measures evaluated in the corridor-level EIS or the decisions documented in the *Record of Decision.*

We will base the EA on the analysis in the *I-405 Corridor Program Final EIS,* and will describe any new or additional project changes, information, effects, or mitigation measures not identified and analyzed in the corridor-level Final EIS. The project-level EA for the Bellevue Nickel Improvement Project will not reexamine the corridor-level alternatives, impacts, and mitigation measures presented in the corridor-level FEIS, or the decisions described in the ROD.

What alternatives do we analyze in this discipline report?

This discipline report is one of 19 environmental elements WSDOT will study to analyze the effects of the Bellevue Nickel Improvement Project. All of the discipline reports will analyze one build alternative and one "no build" or "no action" alternative. This approach is consistent with FHWA's guidelines for preparing a NEPA EA.

What is the No Build Alternative?

We assume the No Build Alternative will maintain the status quo: only routine activities such as road maintenance, repair, and safety improvements would occur within the corridor between now and 2030.

NEPA requires us to include and evaluate the No Build Alternative in this discipline report. We use this approach to establish an existing and future baseline for comparing the effects associated with the Build Alternative. We assume the No Build Alternative will maintain the status quo: only routine activities such as road maintenance, repair, and safety improvements would occur within the corridor between now and 2030. The No Build Alternative does not include improvements that would increase roadway capacity or reduce congestion on I-405. We describe these improvements further in the Bellevue Nickel Improvement Project Traffic and Transportation Discipline Report.

What are the principal features of the Build Alternative?

The Bellevue Nickel Improvement Project will add one new general-purpose lane in each direction along a 2-mile section of I–405 between I-90 and SE 8th Street. We will generally use the

inside or "median" side of I-405 for construction. After we re-stripe the highway, the new lanes will occupy the outside of the existing roadway. The project also includes new stormwater management facilities and better drainage structures and systems.

Other project activities include developing off-site wetland mitigation as well as on-site stream mitigation areas to compensate for the loss of these resources within the project area. We expect project construction to begin in spring 2007 and the improved roadway to be open to traffic by fall 2009.

Improvements to Southbound I-405

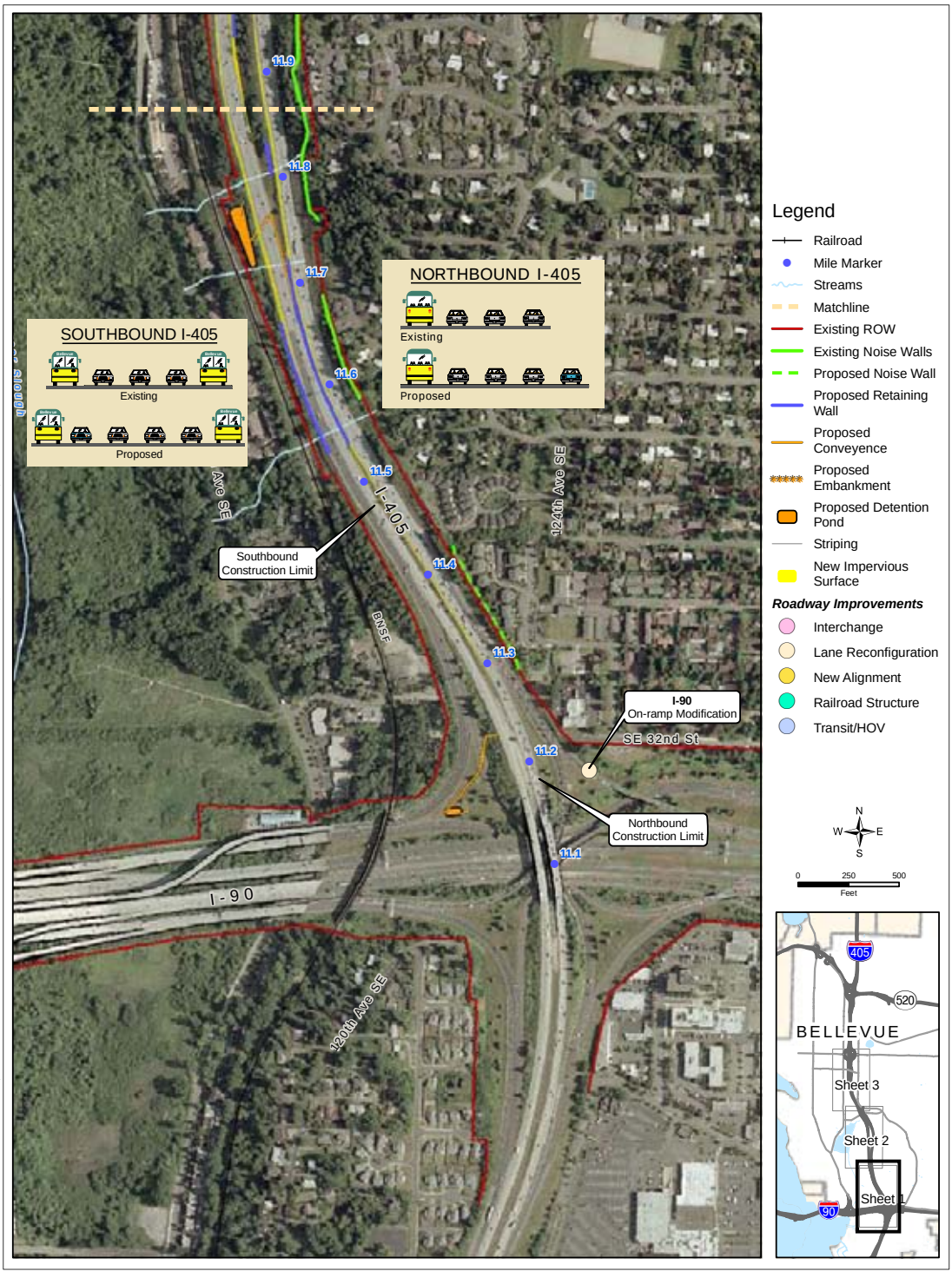
We will add one lane in the southbound direction of I-405 from approximately SE 8th Street to I-90.

In the southbound (SB) direction, we plan to add one new travel lane from approximately Southeast (SE) 8th Street to I-90 (Exhibits 2, 3, and 4). In addition, the existing outside HOV lane at I-90 will be extended north so that it begins at the on-ramp from SE 8th Street. In order to add these lanes and maintain traffic flow during construction, we will shift approximately 3,000 feet of the SB roadway as much as 200 feet east into the existing median. The relocated SB roadway will connect to the existing SB travel lanes just north of the I-90 interchange, and south of the existing bridge over SE 8th Street.

We will build a new tunnel underneath the Burlington Northern Santa Fe (BNSF) railroad, just east of the existing Wilburton Tunnel, to accommodate the relocated and widened SB roadway. The existing tunnel does not have the capacity to accommodate additional lanes of SB traffic.

The existing SB travel lanes and the Wilburton Tunnel will remain open to traffic during construction of the new tunnel and the relocated/widened SB lanes. We will also build the new tunnel wide enough to accommodate additional lanes. The existing tunnel will remain after we complete the improvements.

Exhibit 2. Proposed Bellevue Nickel Project Improvements (Sheet 1 of 3)



Source: WSDOT; 2004, King County; 2004 | \\SEAW405405gis\project\bellevue\map_docs\discipline_reports\project_description\Project Description.mxd | Last Updated : 11-07-05 |

Exhibit 3. Proposed Bellevue Nickel Project Improvements (Sheet 2 of 3)

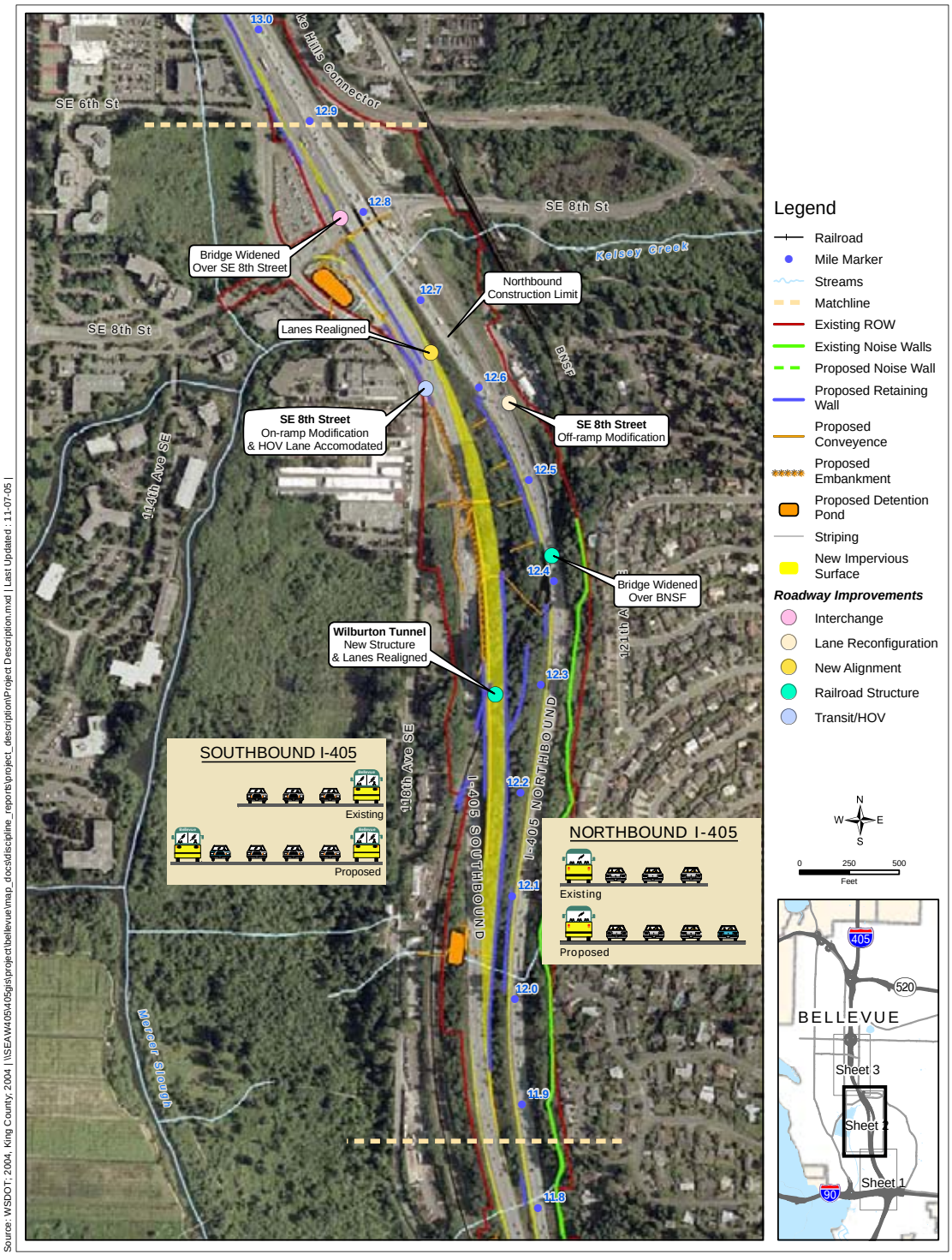
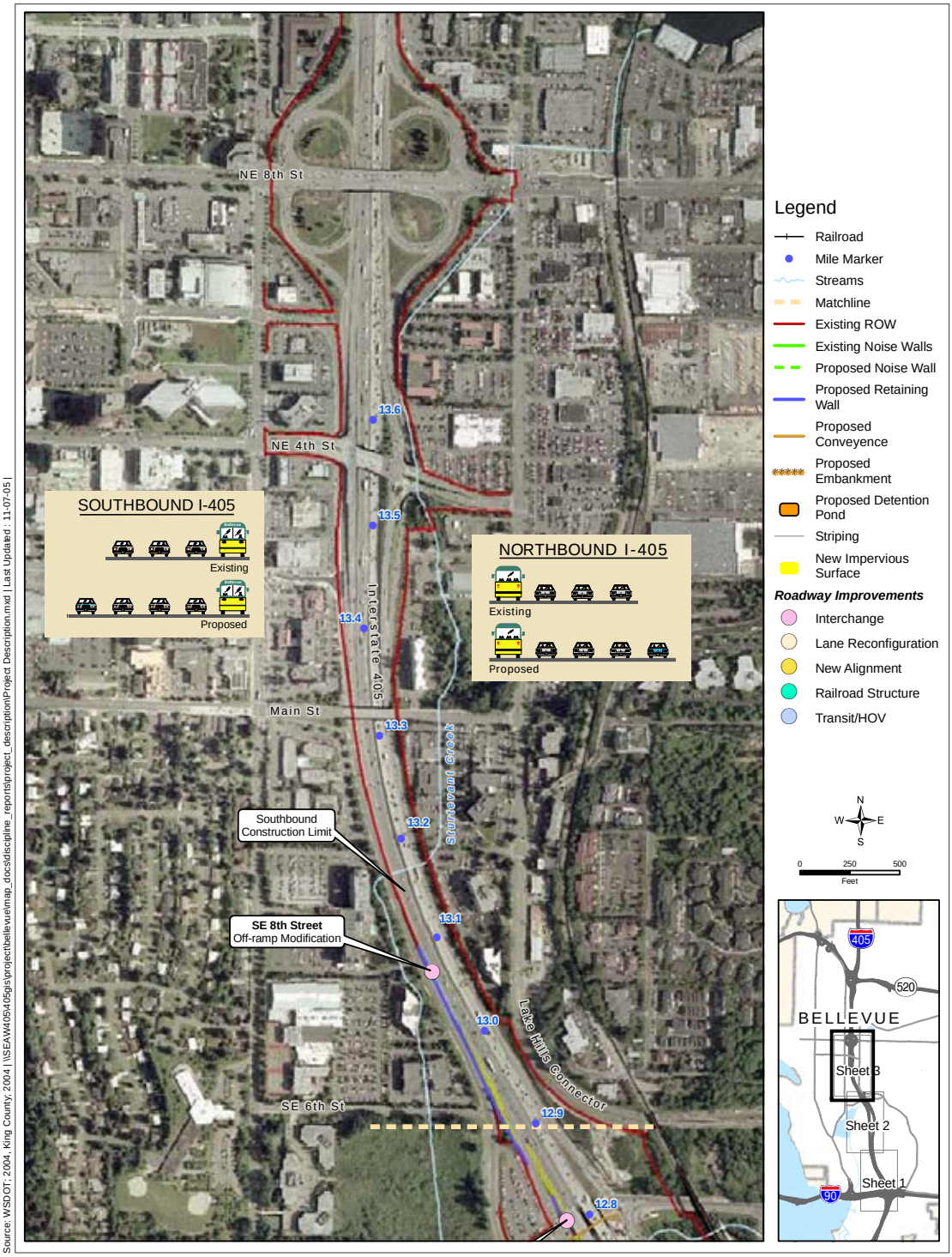


Exhibit 4. Proposed Bellevue Nickel Project Improvements (Sheet 3 of 3)



We will also include the following improvements in the Build Alternative:

- Modify the existing off-ramp at SE 8th Street to make room for an additional southbound lane on I-405. The off-ramp will then become a single-lane, optional off-ramp (i.e., the off-ramp will no longer be an "exit only" off-ramp).
- Build a retaining wall between the SB travel lanes and the off-ramp at SE 8th Street.
- Widen the existing bridge over SE 8th Street to the west to accommodate the new SB lane.
- Modify the existing on-ramp at SE 8th Street to tie into the relocated SB general-purpose travel lanes.
- Reconfigure the on-ramp at SE 8th Street to accommodate the extended outside HOV lane.
- Temporarily shift the existing BNSF railroad track from its current alignment to allow for continuous railroad operation during construction of the new tunnel.
- Construct retaining walls along the eastern edge of the relocated SB travel lanes.

Improvements to Northbound I-405

We will add one lane in the northbound direction of I-405 from approximately I-90 to SE 8th Street. All widening of the northbound mainline will occur on the inside (median side) of the existing roadway.

In the northbound (NB) direction, we plan to add one new travel lane from approximately I-90 to SE 8th Street (Exhibits 2, 3, and 4). We will add one new lane to the NB ramp from I-90. We will shift the NB lanes to allow all of the proposed widening to occur on the inside, or median side of the existing roadway.

Additional improvements include:

- Re-stripe the westbound/eastbound I-90 on-ramp to NB I-405 resulting in one lane becoming two lanes in the NB direction.
- Widen, shift, and re-stripe NB I-405 travel lanes north of I-90 to allow the westbound I-90 to NB I-405 on-ramp and the eastbound I-90 to NB I-405 on-ramp to enter I-405 without having to merge into a single lane.
- Construct several retaining walls needed for road widening in locations that allow for existing and future widening of I-405.

- Construct a noise barrier approximately 725 feet long and 16 feet high (see Exhibit 2).
- Widen the existing bridge over the BNSF Railroad to the west to accommodate the new NB lane.
- Modify the NB off-ramp to SE 8th Street to make it a single-lane "exit-only" off-ramp.
- Transition the NB travel lanes back into the existing lane configuration before crossing over SE 8th Street.

Improvements to the Stormwater Management System

Managing stormwater for the I-405 Bellevue Nickel Improvement Project involves the collection and treatment of rainfall runoff from the new project pavement consistent with the guidelines in the WSDOT Highway Runoff Manual.

Currently, we treat less than 5 percent of the existing runoff from paved surfaces in the project area before discharging it. We will improve this condition by treating 17 percent more area than the new paved surface area we create. By treating a greater area, we improve flow control and remove pollutants from a portion of the existing roadway as well as from newly constructed areas.

Reconfiguration and new construction associated with the SB lanes will mean that we need to replace much of the existing drainage system. We will continue to use open roadside ditches along the shoulders of the roadway shoulders where possible. We will use standard WSDOT catch basins and manhole structures to move the roadway runoff to a system of stormwater drain pipes. These features will transport runoff to treatment and flow-control facilities within the existing ROW.

We will construct three new stormwater ponds (detention ponds combined with stormwater treatment wetlands) as part of the project and enlarge the existing pond at SE 8th Street. Two of the new ponds will be located south of the Wilburton Tunnel between the SB lanes and the BNSF railroad ROW. We will construct the third new pond in the northwest quadrant of the I-90/I-405 interchange. The project will discharge treated stormwater following existing flow patterns to Mercer Slough or to the wetlands that surround it.

Best Management Practices (BMPs)

BMPs are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion control measures and construction management to minimize traffic disruption. Please see Appendix A for a complete list of BMPs.

Avoidance and Minimization Measures

WSDOT will use Best Management Practices (BMPs), WSDOT Standard Specifications, and design elements to avoid or minimize potential effects to the environment for the Bellevue

WSDOT Standard Specifications

Guidelines and procedures established by WSDOT for roadway design and construction in a variety of design, engineering, and environmental manuals.

Nickel Improvement Project. Collectively, these measures to avoid or minimize potential effects to the environment are known as "avoidance measures." We describe these measures in more detail in an Appendix A. If the project has additional effects not addressed in the avoidance measures, we will address these measures through mitigation.

Wetland and Stream Mitigation Sites

We will compensate for adverse effects to wetlands and their buffers by creating just over an acre of wetland within the boundaries of Kelsey Creek Park (Exhibit 5). The site is located north of the intersection of Richards Road and the Lake Hills Connector.

Our general concept will be to create an area that will transition from forested land beside the Lake Hills Connector to wetlands within Kelsey Creek Park. We will reshape the surface area to create favorable conditions for the necessary wetland aquatic characteristics, and we will replant and enhance habitat in the area by constructing habitats and replanting adjacent roadside areas with forest-type vegetation.

Similarly, we will compensate for unavoidable effects to "Median Stream," the unnamed stream within the I-405 median. We have developed a conceptual stream mitigation plan that includes on-site habitat restoration and creation. The conceptual stream mitigation plan includes the following specific elements (see Exhibit 6):

- Connect the new Median Stream culvert under I-90 to the existing channel and wetland located west of SB I-405.
- Create approximately 500 linear feet of stream channel along the western slope of SB I-405.
- Buffer the created stream channel with approximately 16,000 square feet of native streamside vegetation.
- Enhance approximately 300 linear feet of riparian habitat west of SB I-405 by removing selected non-native invasive plant species and replacing with native streamside vegetation.

We provide more detailed information about mitigation efforts planned in conjunction with the Bellevue Nickel Improvement in the Surface Water, Water Quality, and Floodplains and Wetlands Discipline Reports.

Exhibit 5. Proposed Wetland Mitigation Area

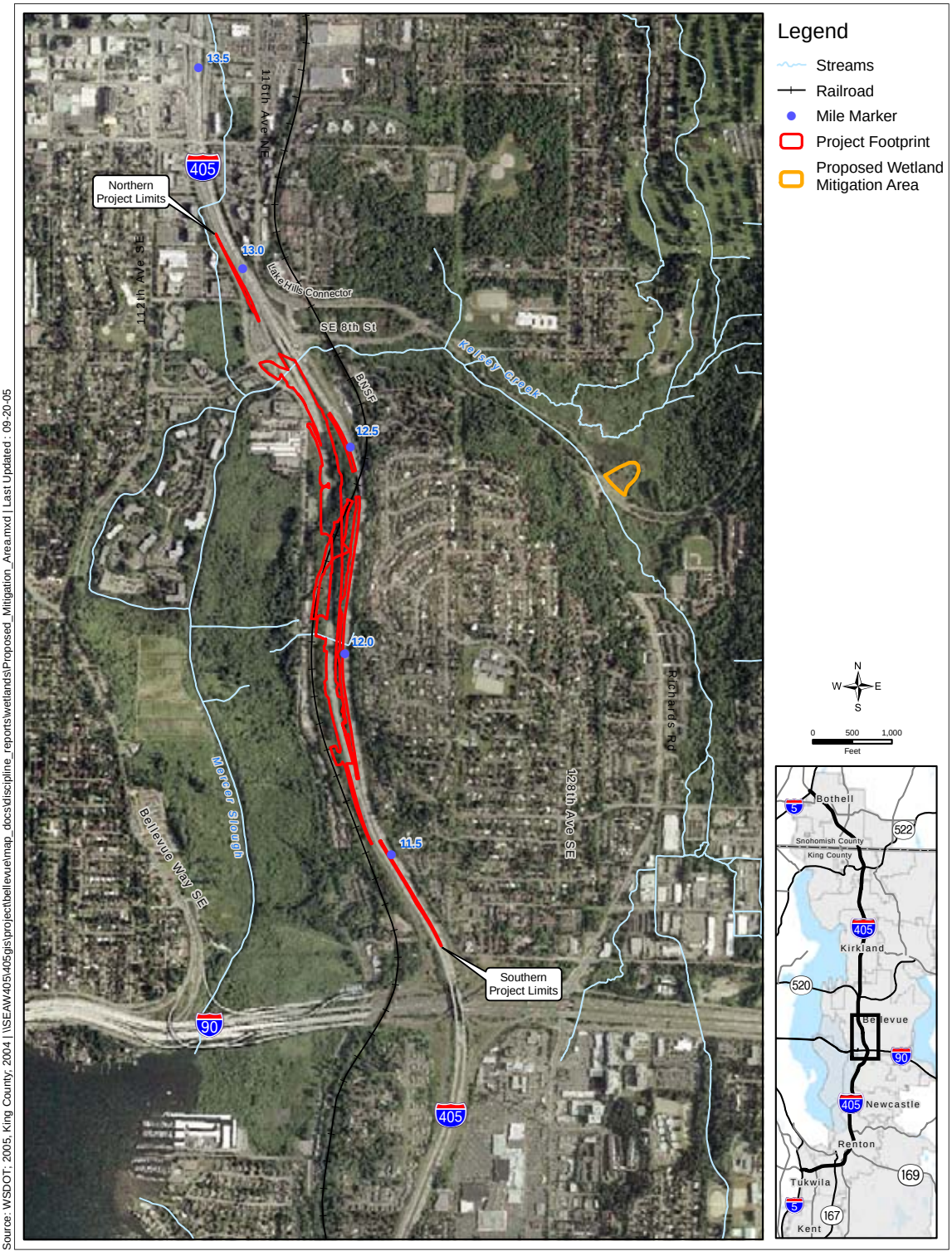
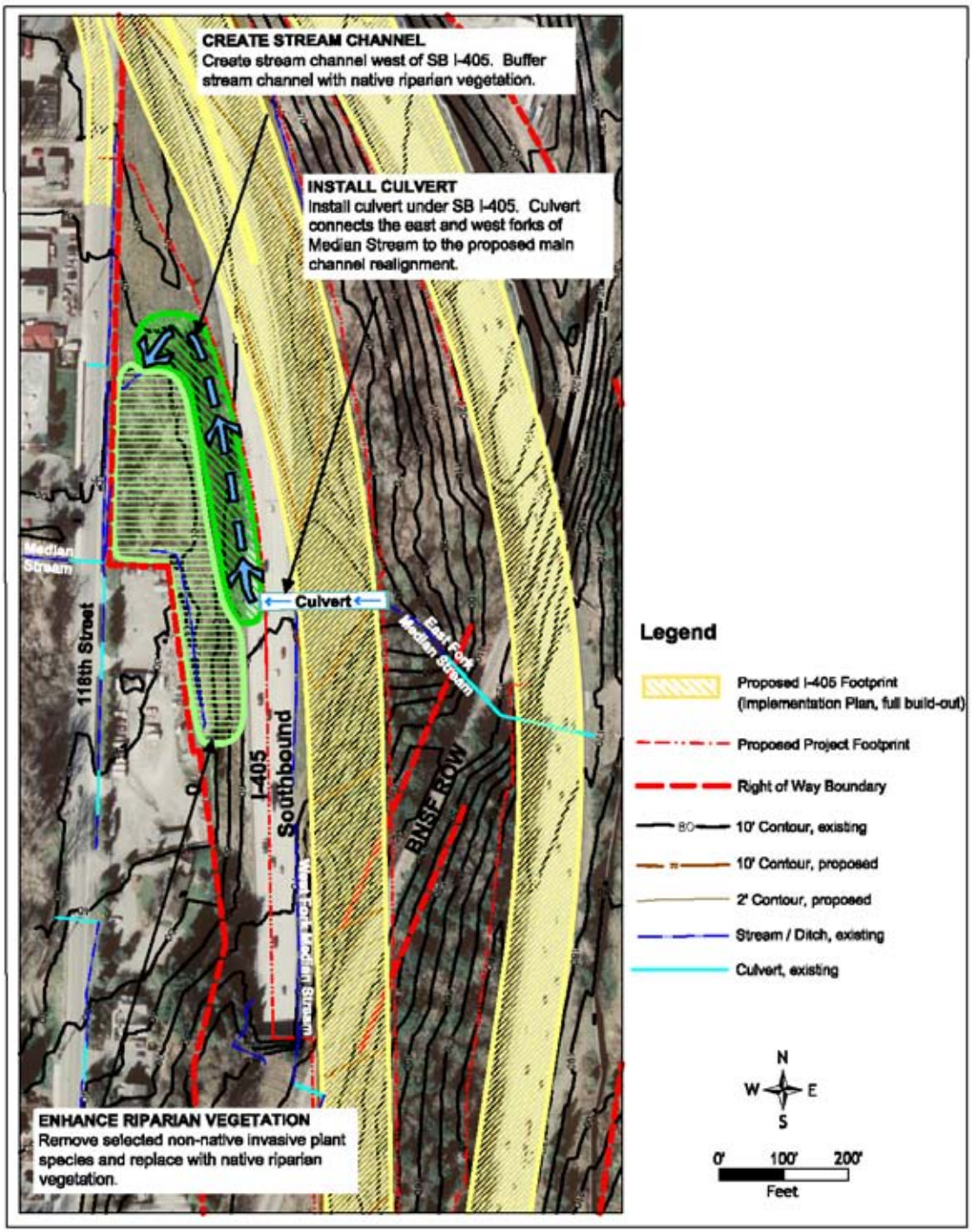


Exhibit 6. Conceptual Stream Mitigation Plan



Why do we consider upland vegetation and wildlife as we plan this project?

We consider upland vegetation and wildlife as we plan this project because both are important components of the natural environment. The study area contains two primary upland vegetation types that may provide habitat to wildlife species adapted to urban environments. Upland vegetation refers to the dominant vegetation communities present in the study area that are not directly associated with wetlands or streams. The Wetlands Discipline Report addresses wetland vegetation; the Fisheries and Aquatic Resources Discipline Report addresses vegetation near streams.

Upland vegetation is vegetation associated with dry areas away from water or wetlands, vegetation that is not located within the area influenced by a body of water.

The study area is located between relatively large areas of possible habitat within the City of Bellevue, including Mercer Slough Park and Kelsey Creek Park.

Because transportation projects have the potential to negatively affect the upland vegetation and wildlife within a study area, we prepared this discipline report to describe and assess the potential effects of the Bellevue Nickel Improvement Project.

WSDOT is committed to preserving, protecting, and enhancing the state's natural resources while operating, maintaining, and improving the state's transportation system.

If a transportation project involves federal funds or permits, such as a U.S. Army Corps of Engineers Section 404 Permit for filling wetlands or streams, we say the project has a federal "nexus." If a project has a federal nexus, it must comply with NEPA and Section 7 of the ESA. We considered these requirements, as well as several other federal and state laws and rules pertaining to vegetation and wildlife, during preparation of this report. We describe each below:

A **federal nexus** exists if activities on private lands are funded, authorized, or permitted by a federal agency.

Section 7 of the ESA requires that federal agencies ensure that their actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat.

National Environmental Policy Act (NEPA)

NEPA requires evaluation of all actions in which federal agencies are involved so that we address environmental considerations in project decision-making, such as harmful effects on fish and wildlife.

Washington State Environmental Policy Act (SEPA)

SEPA mandates procedures similar to NEPA but for state and local actions. It includes specific requirements for the consideration of effects on plants and animals, as well as other

important environmental concerns, during project review and approval.

The Endangered Species Act (ESA)

ESA provides criteria for determining effects to threatened and endangered plant and animal species. The goals of the ESA include species conservation, ecosystem conservation, and species recovery. The ESA also protects the habitat of listed species.

Migratory Bird Treaty Act

This federal law protects migratory birds (with the exception of the taking of game birds during established hunting seasons) and includes feathers, eggs, nests, and products made from migratory birds.

Bald and Golden Eagle Protection Act

This federal law protects bald and golden eagles, their parts, products, nests, and eggs, making it illegal to pursue, shoot, poison, wound, kill, capture, trap, collect, molest, or disturb the eagles.

Washington State Bald Eagle Protection Rules

The Bald Eagle Protection Rules (WAC 232-12-292) are designed to protect eagle habitat and thereby increase and maintain eagle populations. The rules promote cooperative habitat management between state and federal agencies and private landowners.

What are the key points of this report?

We identified the following key points related to the existing condition and potential effects for upland vegetation and wildlife:

- The dominant vegetation communities in the study area are forested uplands and various sized areas of shrubs and grass.
- The wildlife habitat types found in the study area include young forests of similar age trees, weedy shrub areas, and wetlands.
- The study area has no known occurrences of upland plant species listed as threatened or endangered under the ESA or that are a candidate for such listing. Nor are there any plant

species of federal concern or species included in the Washington Natural Heritage Program database.

- Observers have documented three special status wildlife species within 1 mile of the study area: bald eagle, great blue heron, and pileated woodpecker. However, records include observation of the pileated woodpecker within the study area.
- The proposed project will permanently convert as much as 7.3 acres of forest vegetation and wildlife habitat and 10.9 acres of shrub/grass/herbaceous vegetation and wildlife habitat to a developed land cover type.
- Even though the project will preserve the existing level of habitat connectivity within the study area, the removal of vegetation from within the highway median and construction of retaining walls between the northbound and southbound lanes will affect the ability of animals to move through some portions of the study area.
- We will avoid and minimize negative effects on upland vegetation and wildlife by implementing a variety of BMPs and avoidance and minimization measures (Appendix A).

I-405 plays a critical role in the regional movement of people and freight.

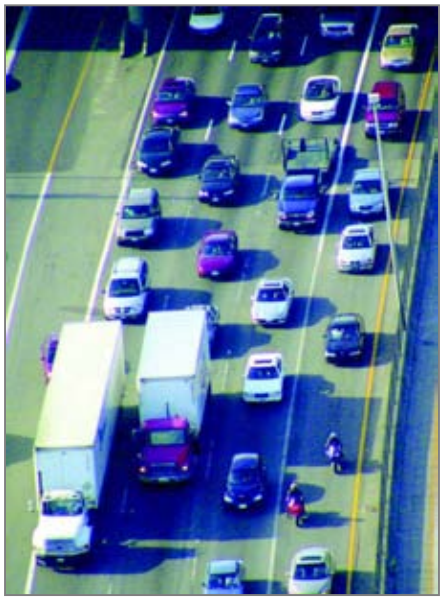
Existing Conditions

What is our study area and how did we determine it?

We determined the study area for upland vegetation to be the project footprint and the associated stormwater pond locations. This includes the area within the existing I-405 ROW including those areas within the ROW where the effects of construction of stormwater detention ponds will be evident.

We determined the study area for wildlife includes the project footprint, plus an area extending up to 1 mile from the project footprint boundary for certain species. The study area consists of the existing I-405 ROW and an area outside the ROW in which effects to wildlife could occur.

We mapped land cover types. The area mapped was within the project footprint and within an area extending 0.25 mile from the project footprint boundary to provide a larger but reasonable area within which to analyze wildlife habitat. The 0.25-mile area was mapped because this is the area in which effects to habitat may affect wildlife species. The proposed project includes activities such as pile driving, which can produce noise that can be heard for long distances. We included the additional area as far as 1 mile from the project footprint boundary for wildlife species such as bald eagles that are sensitive to noise, and can therefore be disturbed by activities at this distance.



Congestion building along the I-405 corridor

What are the existing land cover types within the study area?

We have used three land cover types to describe the type of upland vegetation found within the study area: forested, shrub/grass/herbaceous, and developed. To describe the wildlife habitat types present within the study area, we elected to use the same three categories, plus the additional category of "wetlands."

Using an aerial photograph taken in 2000, we identified land cover and wildlife habitat types within the study area and then verified a sample of these areas during our field reconnaissance survey on April 20, 2005. We selected sample areas on the basis of accessibility, with emphasis on observing areas of potential habitat connectivity along the BNSF ROW. Exhibit 7 shows the distribution of these land cover and habitat types within the study area.

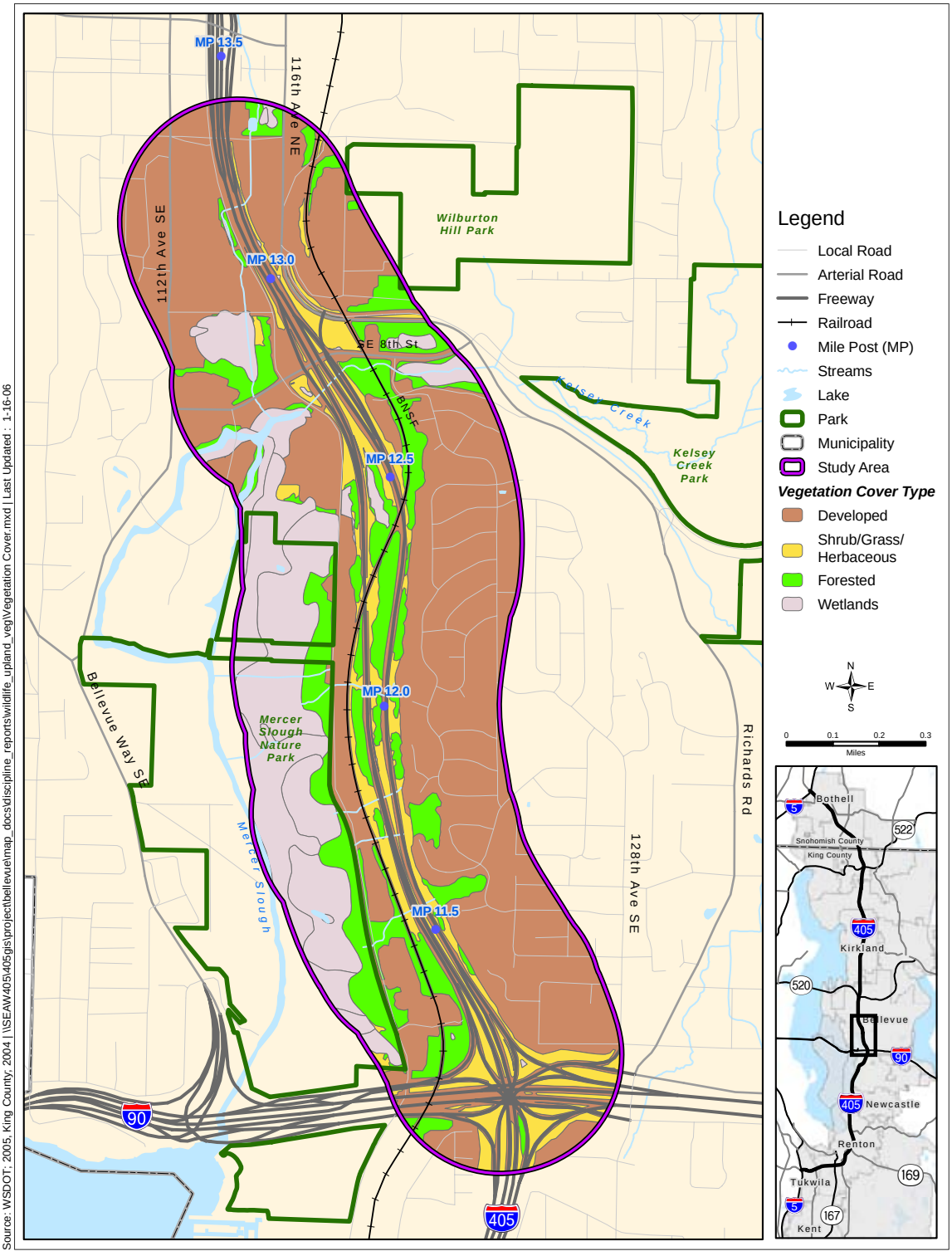
Forested areas comprise all areas containing trees, including conifer stands where Douglas-fir (*Pseudotsuga menziesii*) is dominant; areas containing species such as western red cedar (*Thuja plicata*); and mixed stands of conifers and hardwoods such as black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) and big-leaf maple (*Acer macrophyllum*).

Shrub/grass/herbaceous areas include all areas containing shrubs, grasses, or herbaceous vegetation, or, commonly, all three of these. This land cover type supports both native and non-native species and includes areas that have been planted with either native or ornamental species.

Developed areas include those with little or no vegetation, such as the road surface and the cleared portion of the BNSF railroad alignment that runs through the study area.

The Wetlands Discipline Report describes wetlands in detail but we include them here because they provide habitat for a variety of wildlife species within the study area.

Exhibit 7. Vegetation Cover in the Study Area



Vegetation along a dry streambed in the study area

Exhibit 8 identifies the total acres of land cover (vegetation) and wildlife habitat types within the project footprint and within 0.25 mile of the project footprint (including associated stormwater ponds). The stormwater ponds are included in the developed land cover type since they will be created by the project and will replace the existing land cover type. Over time, however, the stormwater ponds are likely to develop wetland characteristics and provide wildlife habitat.

Exhibit 8. Vegetation Land Cover and Wildlife Habitat Type within the Study Area

Land Cover/Habitat Type	Upland Vegetation Acres in Study Area (project footprint)	Wildlife Acres in Study Area (project footprint and 0.25-mile area)
Forest	7.3	108.6
Shrub/grass/herbaceous	10.9	65.5
Wetlands	1.3	140.5
Developed	11.3	509.3
Total	30.8	824.0

Upland Vegetation

How did we collect information on upland vegetation?

Of the land cover types identified within the study area, forested areas and areas with shrub/grass/herbaceous cover contain upland vegetation.

We collected information on the types of upland vegetation within the study area using the following sources:

- U.S. Fish and Wildlife Service list of threatened, endangered, proposed and candidate species for King County (USFWS 2005);
- Washington Department of Natural Resources (DNR) Washington Natural Heritage Program (WNHP) database (DNR 2005);
- Geographical Information System (GIS) data available from WSDOT, King County, and the City of Bellevue;
- Aerial photographs (2000); and
- Information collected during a field reconnaissance of the study area.

We reviewed the USFWS list of threatened, endangered, proposed and candidate species to determine which species listed under the ESA, (or are either proposed or candidates for such listing), have the potential to occur in the study area. We also reviewed the DNR Natural Heritage data for known locations of

Washington Natural Heritage Program (WNHP)

The WNHP collects data about existing native ecosystems and species to provide an objective, scientific basis from which to determine protection needs. The program also develops and recommends strategies for protection of the native ecosystems and species most threatened in Washington. This information is used by landowners, state and federal government agencies, consulting firms, planning departments, and conservation groups to support the state's environmental and economic health.

Forested areas within the study area are young stands of mixed deciduous and coniferous trees

rare plant species or rare plant communities within the study area.

What are the dominant upland vegetation communities in the study area?

Non-Native Invasive Plant Species

Non-native invasive plant species are plant species that do not naturally grow in a particular area, but thrive once introduced to said area. These plants are characteristically adaptable, aggressive and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often leads to outbreak populations.

We identified three dominant vegetation communities in the study area: forested upland, shrub/grass/herbaceous, and wetlands. We also identified areas of non-native invasive plant species. Since non-native species are abundant throughout both the forested and the shrub/grass/herbaceous areas, we did not map them separately, but we discuss them as a subset of these vegetation communities. Because wetlands are not an upland vegetation type we do not describe them here; the Wetlands Discipline Report includes detailed descriptions. Upland forest and shrub/grass/herbaceous are the dominant upland vegetation communities in the study area and we describe them below.

Red elderberry (*Sambucus racemosa*)

Forested upland vegetation within the study area contains predominantly Douglas-fir with black cottonwood and big-leaf maple also in the overstory. Both the native Pacific madrone (*Arbutus menziesii*) and non-native deodar cedar (*Cedrus deodara*) also occur but are not as common. The shrub understory is dominated by non-native invasive plant species, such as Himalayan blackberry (*Rubus discolor*) and Scot's broom (*Cytisus scoparius*). Native understory shrubs that occur include osoberry (*Oemleria cersiformis*), ocean spray (*Holodiscus discolor*), and red elderberry (*Sambucus racemosa*).

Forested areas within the study area are young stands of mixed deciduous and coniferous trees. These areas are lacking in forest structure, with no snags and very little downed woody material. The absence of snags is likely due to both the young age of the forested areas and WSDOT's maintenance practices that include removal of snags within the I-405 ROW located within 15 feet of the roadway to reduce potential hazards to motor vehicles. There is no old growth forest within the study area.

Noxious Weeds

Noxious weeds are non-native plants that when established are highly destructive, competitive, or difficult to control by cultural or chemical practices (Chapter 17.10 RCW; WAC 16-750).

We observed many non-native plant species and noxious weeds in the study area, including Scot's broom, tansy ragwort, and Himalayan blackberry. Areas of planted grasses interspersed with shrubs and herbaceous vegetation dominate the shrub/grass/herbaceous vegetation community. Scot's broom is a common species in areas containing dense shrubs. Himalayan blackberry occurs in large patches throughout this vegetation community. This vegetation community also includes upland areas that have been planted, such as the area directly east of the

off-ramp from northbound I-405 at SE 8th Street. For herbaceous species, we observed the non-native shepherd's purse (*Capsella bursa-pastoris*), herb Robert (*Geranium robertianum*), and tansy ragwort (*Senecio jacobaea*). The native common horsetail (*Equisetum arvense*) is also present.

Do any special status plant species occur in the study area?

There are no known occurrences of special status plant species in the study area (WDNR 2005). One special status plant species, tall bugbane (*Cimicifuga elata*), may occur in the study area (USFWS 2005) (Appendix B). Tall bugbane is a distinctively tall understory plant that grows in lowland forests west of the Cascade mountain range. This species is unlikely to occur within the study area due to past habitat disturbance from the construction and maintenance of I-405 and the prevalence of non-native weed species within the ROW.

Special Status Plant Species

Special status plant species are plant species that are:

- listed as threatened or endangered under the Endangered Species Act
- either proposed for or are candidates for such listing;
- federal species of concern; or
- included in the Washington Natural Heritage Program database.

Tall bugbane (*Cimicifuga elata*)

Wildlife

How did we collect information on wildlife?

We collected information on wildlife habitat and wildlife species within the study area from the following sources:

- U.S. Fish and Wildlife Service (USFWS) list of threatened, endangered, proposed, and candidate species for King County (USFWS 2005);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (WDFW 2005);
- Appropriate agency staff, particularly the WDFW Area Habitat Biologist;
- GIS data available from WSDOT, King County, and the City of Bellevue;
- City of Bellevue Municipal Code;
- Aerial photographs (2000);
- Study of wildlife species within Mercer Slough Park (Waggoner 2001); and
- Information collected during a field reconnaissance of the study area.

We reviewed the USFWS list of threatened, endangered, proposed, and candidate species to determine which species listed under the ESA, or that are either proposed or candidates for such listing (Appendix B), have the potential to occur in the study area. We also reviewed the WDFW PHS data for known

Priority Species

The Washington State Department of Fish and Wildlife (WDFW) defines priority species as those that are priorities for conservation and management and include state-listed endangered, threatened, sensitive, and candidate species; animal aggregations considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable.

Priority Habitats

Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species.

Racoon (*Procyon lotor*)

Common crow (*Corvus brachyrhynchos*)

locations of priority wildlife species and priority habitats within the study area. We then contacted the WDFW Area Habitat Biologist to determine if any additional information was available based upon local knowledge.

We reviewed the Bellevue Municipal Code to determine which species or habitats require consideration and analysis under the code. We then looked at GIS data from WSDOT, King County, and the City of Bellevue to determine potential additional locations of habitats or species to include in the analysis.

What are the wildlife habitat types in the study area?

We mapped the wildlife habitats within the study area using the same land cover types used to describe upland vegetation: forested, shrub/grass/herbaceous, and developed. We added a category for wetlands because existing wetlands within the study area provide important habitat for a wide variety of wildlife. Exhibit 7 identifies the amount of these habitat types located within the study area.

Which common wildlife species do we know to live in the study area or expect to find there?

No common wildlife species were included in the PHS database for the study area. Based on the habitat available in the study area we expect wildlife species that commonly occur in urban areas to occur in the study area. This includes species such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), opossum (*Didelphus virginianus*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), and other common mammal and migratory and non-migratory bird species.

Students at the University of Washington at Bothell conducted a study of Mercer Slough Park in 2001. Their report provides a list of wildlife species observed in the park (Waggoner 2001). We assumed that many of these species may also occur in the study area given the close proximity, particularly species that are common in the Puget Sound area, such as Pacific chorus frog (*Pseudacris regilla*), common garter snake (*Thamnophis sirtalis*), red-tailed hawk (*Buteo jamaicensis*), chickadee (*Parus* spp.), and coyote (*Canis latrans*).

During the field reconnaissance survey, we observed both a red-tailed hawk and a pileated woodpecker (*Dryocopus pileatus*) in the study area.

Do any special status wildlife species occur in the study area?

Based upon our review of the sources listed above, there are three documented special status species within the study area, and seven that may occur in the study area that no one has yet documented. We show these species, their status, and their documentation status in the study area in Exhibit 9. A brief discussion of each of these species follows the exhibit.

Special Status Wildlife Species

Special status wildlife species include those listed as endangered or threatened under the Endangered Species Act; species that are candidates or are proposed for listing under the endangered species act; species of federal concern; species listed by the Washington Department of Fish and Wildlife as endangered, threatened, candidate, or sensitive, and other priority species.

Exhibit 9. Special Status Species Documented or Potentially Occurring in the Study Area

Species	Status	Occurrence in study area
Bald eagle *Haliaeetus leucocephalus*	Federally threatened State threatened	Documented (WDFW 2005)
Yellow-billed cuckoo *Coccyzus americanus*	Federal candidate	Not documented; not expected to occur
Western toad *Bufo boreas*	Federal concern State candidate	Documented in Mercer Slough Park (Waggoner 2001); may occur in study area
Long-eared myotis bat *Myotis evotis*	Federal concern	Not documented; may occur
Long-legged myotis bat *Myotis volans*	Federal concern	Not documented; may occur
Pacific Townsend's big-eared bat *Corynorhinus townsendii townsendii*	Federal concern State candidate	Not documented; may occur
Olive-sided flycatcher *Contopus cooperi*	Federal concern	Not documented; may occur.
Peregrine falcon *Falco peregrinus*	Federal concern State sensitive	Not documented in study area; known to nest within one mile of the study area (WDFW 2005)
Great blue heron *Ardea heodias*	State priority species	Documented (WDFW 2005)
Pileated woodpecker *Dryocopus pileatus*	State candidate	Documented during field reconnaissance survey

Documented Occurrence: Observers have documented occurrences of the species in the WDFW PHS database or we have observed the species in the study area during field reconnaissance survey.
Not Documented: Species may occur based upon the presence of habitat commonly used by the species in the study area.

Documented species

Bald eagle. The PHS data shows a bald eagle nesting territory overlapping the western portion of the study area (WDFW 2005). It shows two bald eagle nest locations within the nesting territory, and one outside the nesting territory. Only one of these nest sites is located within 1 mile of the project footprint. It is likely that the other two nests are alternate nest sites for the same breeding pair. We have documentation that the nest located within 1 mile of the project footprint has been active as recently as 2004.

Great blue heron. There is a great blue heron rookery within the study area (WDFW 2005). The rookery has not been monitored this year for activity however it has been active for the past 12 breeding seasons and is therefore likely active this year as well (Bradley pers. comm.). Great blue herons from this colony likely forage in wetlands within the study area.

Pileated woodpecker. We observed a pileated woodpecker in the study area during the field reconnaissance survey. Pileated woodpeckers have large home-range territories (Rodrick and Milner, 1991) and therefore will likely occur in forested habitat throughout the study area. Pileated woodpeckers may nest and forage in forested habitat in the study area. Pileated woodpecker nests are generally located in large diameter (greater than 27 inches diameter at breast height [dbh]) snags that still have bark and that have broken tops (Rodrick and Milner, 1991). Suitable nest trees are absent within the project footprint but may occur within the study area.

Species not documented that may occur

The following species may occur due to the presence of specific vegetation and habitat characteristics. However, none have been documented.

Yellow-billed cuckoo. The yellow-billed cuckoo is no longer a breeder in Washington State (Smith et al., 1997) and is therefore unlikely to occur in the study area. Historic habitat for the yellow-billed cuckoo in Washington included low elevation wetlands and riparian corridors in the Puget Sound lowlands, including the wetlands associated with Lake Washington.

Western toad. Waggoner (2001) documented the western toad in Mercer Slough Park and the species may occur in the study area. This species uses wetland habitat while in the tadpole stage and for breeding as an adult. After tadpoles change into toads, they regularly use forested upland habitat. We would expect this

species to use both wetland habitat and upland forest habitat in the study area.

Bats. There are three species of bats included on the USFWS species of concern list that may occur in the study area. They are the long-eared myotis bat, the long-legged myotis bat, and Pacific Townsend's big-eared bat. The long-eared myotis bat is more common in Eastern Washington, but occurs in Western Washington in association with forested habitat. The long-legged myotis bat occurs throughout western Washington and is also associated with forest habitat. The Pacific Townsend's big-eared bat is also associated with forest habitat but is a species of concern primarily because its nursery colonies are sensitive to disturbance (Johnson and Cassidy, 1997). Nursery colonies of this species are commonly located in caves, lava tubes, or abandoned buildings (Rodrick and Milner, 1991). The long–eared myotis bat and the long-legged myotis bat may use trees in forested portions of the study area for roost sites, and all three species may forage for insects along forest edges and over wetlands in the study area.

Olive sided flycatcher. The olive-sided flycatcher is associated with forest edges, usually occupying sites with large tree patches located adjacent to cleared areas, burns, or water bodies but observers have rarely documented the species nesting in city parks (Smith et al., 1997). Olive-sided flycatchers may use forested habitats in the study area for nesting and may also forage in the study area.

Peregrine falcon. There is a known peregrine falcon nest located within a mile of the study area. Individuals from this nest may include the study area as part of their home-range territory. Peregrine falcons may forage in the study area, and may perch on trees in the study area to consume prey.

Do any priority habitats occur in the study area?

We consulted the WDFW PHS database for priority habitats within the study area and found documentation of one priority habitat type, wetlands, in the study area. The Wetlands Discipline Report provides detailed descriptions of wetlands.

How are wildlife habitats connected within the study area?

Wildlife habitat connectivity allows wildlife to move between patches of habitat. This is important for several reasons. For animals that need large home ranges, it allows animals to use smaller patches of habitat that they can travel between to make up a home range. It also allows habitat for young animals that are moving away from the home range they were born in and establishing their own home ranges to travel through. For smaller animals that do not move large distances, habitat connectivity provides continuous habitat and helps to prevent the isolation of animal populations. Connective corridors are most effective when they contain enough vegetation to provide protective cover for animals traveling through them.

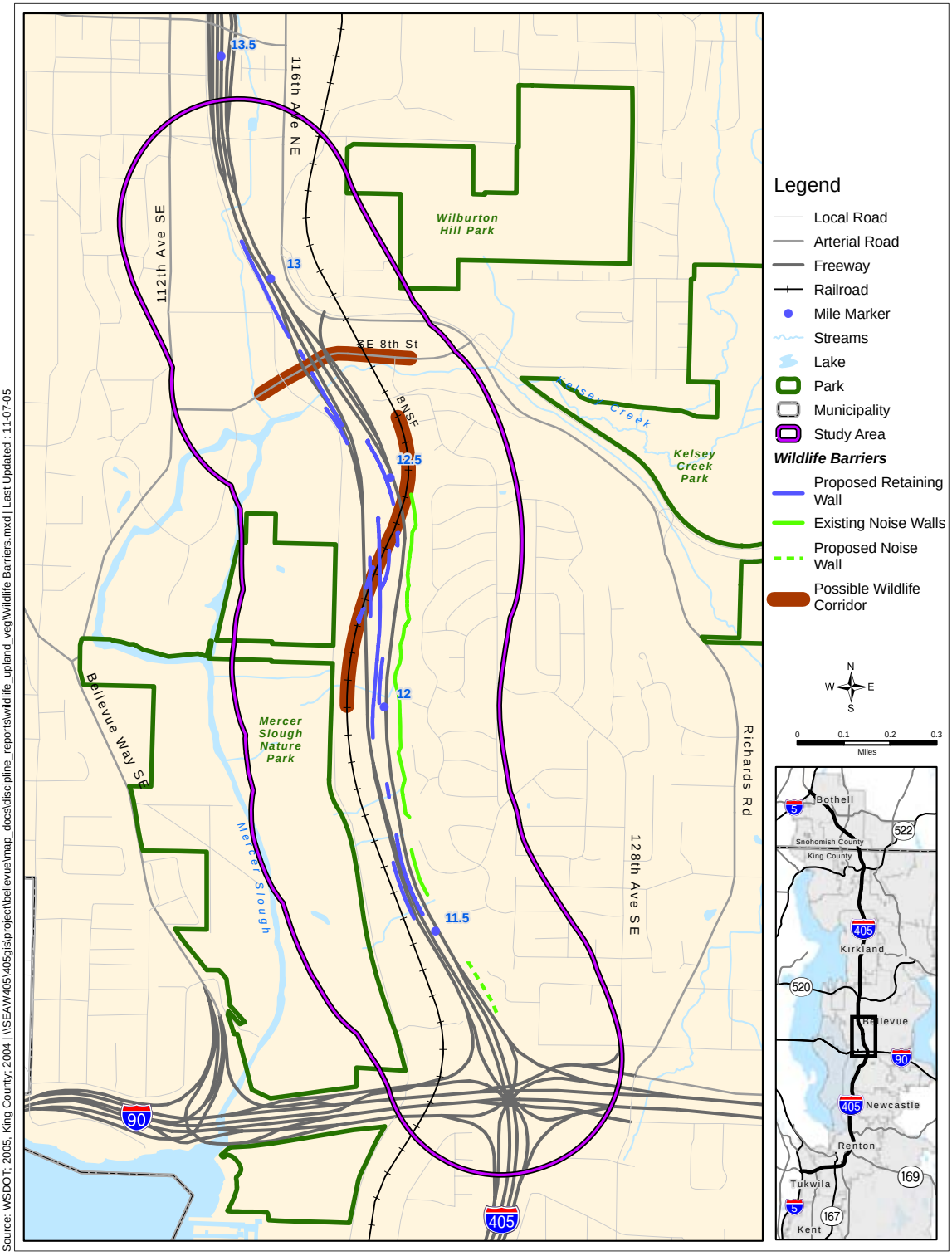
Connective corridors are often located along streams or rivers if there is a corresponding strip of riparian vegetation. Other linear features on the landscape can also provide connective corridors if they contain sufficient vegetation. Within the study area the interstate ROW and the BNSF ROW provide potential connective corridors.

Exhibit 10 shows the connective corridors as well as the potential barriers to movement along these corridors in the study area. In urban settings, connective corridors are particularly important because patches of wildlife habitat are often highly fragmented, occurring in small, widely spaced patches. Features that are common in urban areas, such as roads and large areas of development, can create barriers to wildlife movement.

The study area lies between two large patches of wildlife habitat within the City of Bellevue: Mercer Slough Park and Kelsey Creek Park. The existing interstate and associated noise wall create a barrier to movement between these patches for the majority of the interstate alignment through the study area. Within the study area, two locations exist where wildlife can cross the interstate without entering lanes of traffic. The first site is located where the BNSF ROW crosses the interstate; the other site is located at the underpass at SE 8th Street.

Potential wildlife corridor under the northbound lanes of I-405

Exhibit 10. Wildlife Barriers in the Study Area



Source: WSDOT; 2005, King County; 2004 | \\SEAW405\405gis\project\bellevue\map_docs\discipline_reports\wildlife_upland_veg\Wildlife Barriers.mxd | Last Updated : 11-07-05

BNSF ROW beneath the northbound lanes of I-405

The BNSF ROW crosses over the southbound lanes of I-405 and under the northbound lanes. The noise wall for the northbound lanes attaches to the bridge that goes over the railroad ROW, so the noise wall does not create a barrier on the east side of the interstate. Along the BNSF ROW, vegetation extends from the west to the east side of I-405, providing continuous cover, except for a narrow strip of unvegetated area directly under the northbound lanes and the area directly adjacent to the railroad tracks. This creates a vegetated connective corridor between the east and west sides of the interstate.

This corridor has the potential to provide habitat connectivity for a variety of terrestrial species, such as coyote and raccoon. Home-range territories can extend across the interstate and can use the corridor for dispersal.

This corridor may help to avoid isolation of animal populations by providing habitat continuity for low-mobility animals with small home ranges, such as shrews or small rodents.

There are two noise walls in this connective corridor along the northbound lanes that could be a movement barrier for some species, however. We show the locations of these noise walls in Exhibit 10.

Because the underpass at SE 8th Street is highly developed with large paved spaces that may create a barrier to movement for many species, we determined that wildlife is less likely to utilize this area. This area also has high traffic volumes that may limit use of the area by wildlife and may increase the probability of fatality for wildlife attempting to move through the area. Wildlife may utilize this area however, particularly during periods of low human activity.

Potential Effects

Upland Vegetation

What methods did we use to evaluate potential effects on upland vegetation?

We evaluated the project's potential effects on upland vegetation using a variety of methods and resources, including the following:

- GIS analysis to determine the acreage, type, and location of affected upland vegetation;
- Review of existing literature on the effects of road construction, operations, and maintenance on vegetation; and
- Review of Washington Department of Natural Resources (DNR) Washington Natural Heritage Program (WNHP) information on plant species and factors that may affect their persistence on a site (DNR 2005).

How would the No Build Alternative affect upland vegetation in the study area?

Under the No Build Alternative, we would continue to manage upland vegetation within the I-405 ROW in its current condition. Management activities include periodic mowing, removal of dead or dying trees and tree limbs that could fall on the roadway, and clearing of brush that encroaches on the roadway. These activities affect vegetation by preventing trees from establishing

What is a Geographic Information System (GIS)?

GIS is a technology that allows WSDOT to view and analyze data from a geographic perspective. GIS links information to location and layers that information to help scientists and engineers model scenarios and view outcomes on a map.

Typical wetland vegetation found in the study area

themselves in mowed areas and preventing forested areas from developing natural features such as snags and downed wood.

How will the Build Alternative affect upland vegetation?

Under the Build Alternative, we determined that construction activities will permanently convert upland forest and shrub/grass/herbaceous habitats to a developed condition within the area of the project footprint. We list the acreage of each of these affected habitat types in Exhibit 11 below.

Exhibit 11. Acres of Effect by Vegetation Type

Vegetation type	Acres affected
Forest	7.3
Shrub/grass/herbaceous	10.9
Total	18.2

Temporary effects to upland vegetation will also occur outside of the project footprint and within the I-405 ROW. Construction equipment moving over areas of upland vegetation will temporarily affect these areas. This outcome is most likely in areas containing grass or herbaceous vegetation. We expect damaged vegetation to reestablish following completion of construction.

Most project effects will occur in the shrub/grass/herbaceous vegetation type. This vegetation type contains a high level of non-native plants, including noxious weeds, and so is not a unique vegetation type within the region.

How would the No Build Alternative affect special status upland plant species in the study area?

As discussed above, we concluded that there is no documentary evidence of special status upland plant species in the study area. One species, tall bugbane, has a low probability of occurring in the study area. Routine maintenance activities within the study area, particularly vegetation management, could affect this species if it is present. Vegetation management, particularly mowing, would affect populations of tall bugbane by either damaging individual plants or it may prevent the plants from being able to survive in the mowed area since some plants cannot tolerate repeated mowing. Mowing may also prevent plants from producing seed, depending on the timing of mowing

in the growing season. A decrease in the number of plants in an area may occur as older plants die off and seedlings do not replace them.

How will the Build Alternative affect special status upland plant species in the study area?

As discussed above, we determined that there is no documented evidence to indicate that special status upland plant species occur in the study area. One species, tall bugbane, has a low probability of occurring in the study area. If any individuals of this species are present, they will be permanently lost during vegetation clearing.

Wildlife

What methods did we use to evaluate potential effects on wildlife?

We evaluated the project's potential effects on wildlife and wildlife habitat using a variety of methods and resources, including the following:

- GIS analysis to determine the acreage, type, and location of affected wildlife habitat;
- Review of potential noise disturbance to wildlife from highway construction and operation;
- Review of potential effects on wildlife habitat connectivity from highway construction;
- Review of existing literature on the effects of road construction and operation on wildlife; and
- Review of WDFW management recommendations for priority habitats and species.

How would the No Build Alternative affect wildlife habitat?

Under the No Build Alternative, we would continue to manage wildlife habitat within the I-405 ROW by conducting periodic mowing, removing dead or dying trees and tree limbs that could fall on the roadway, and clearing brush that encroaches on the roadway. These activities would prevent additional trees from establishing themselves in mowed areas and prevent forested areas from developing more natural features such as snags and

downed wood that would otherwise support a greater variety of wildlife.

Under the No Build alternative there would be no loss of wetlands within the proposed project footprint area.

How will the Build Alternative affect wildlife habitat?

Construction of the Build Alternative will convert wildlife habitat within the project footprint from forest, wetland, or shrub/grass/herbaceous to a developed land cover type. We show the acreage of each of these affected habitat types and the amount remaining within the 0.25-mile study area (Exhibit 12).

Exhibit 12. Wildlife Habitat Removed by Project Construction

Vegetation/wildlife habitat type	Acres affected	Acres remaining
Forest	7.3 (7%)	101.3 (93%)
Shrub/grass/herbaceous	10.9 (17%)	54.6 (83%)
Wetlands	1.3 (1%)	139.2 (99%)
Total	19.5 (6%)	295.1 (94%)

The forested habitat affected is younger mixed forest stands that are common in the study area. The amount of this habitat affected is a small portion of the total amount available in the study area, as shown in Exhibit 11.

How would the No Build Alternative affect common wildlife species?

Ongoing routine maintenance would occur under the No Build Alternative at similar levels as currently occur. No additional effects to common wildlife species would occur under the No Build Alternative.

How will the Build Alternative affect common wildlife species?

The Build Alternative will affect common wildlife species by reducing the amount of habitat available for them in the study area. The shrub/grass/herbaceous habitat type will sustain the greatest effects. This habitat type contains many non-native and weedy species that likely limit its value as habitat. Removal of this habitat type could reduce the amount of food and cover

available for species such as raccoon and opossum in the study area.

Removal of forest habitat will reduce the amount of habitat available for species commonly found in urban forest environments. Effects include a reduction in habitat for common wildlife species including the amount of nesting habitat available for birds such as the American robin and resting sites for species such as raccoon.

How would the No Build Alternative affect special status wildlife species?

Ongoing routine maintenance would occur under the No Build Alternative at similar levels as currently occur. No additional effects to special status species would occur under the No Build Alternative.

How will the Build Alternative affect special status wildlife species?

The Build Alternative may affect special status species by habitat loss, noise, and disturbance from construction activities.

Removal of forested habitat will reduce the amount of habitat available in the study area for forest-dependent species, such as the long-eared myotis bat, long-legged myotis bat, olive-sided flycatcher, and pileated woodpecker. For example, loss of forested habitat will reduce the amount of roosting habitat available for both long-eared and long-legged myotis bats in the study area; will reduce the amount of nesting habitat available for olive-sided flycatchers and other migratory birds in the study area; and will reduce the amount of foraging and nesting habitat available for pileated woodpecker in the study area. Compared to the large areas of suitable habitat for these species remaining to the west of the study area (in Mercer Slough Park) and to the east (in Kelsey Creek Park), this loss will represent a small amount of the total habitat available in the project vicinity.

Converting wetland habitat to a developed condition will reduce the amount of foraging habitat for great blue herons in the study area. The amount of wetland affected is small, however, compared to the hundreds of acres of wetland habitat available in the study area, specifically in Mercer Slough and Kelsey Creek Parks. Therefore, we do not expect the conversion of these wetlands to a developed land cover type to affect the productivity of the great blue heron colony located in Mercer

Slough Park. Wetland mitigation, as described in the Wetland Discipline Report, will also provide replacement habitat.

Converting wetland habitat to a developed condition will reduce the amount of breeding habitat available for western toads in the study area. However, these wetlands may be too small to offer sufficient breeding habitat. This species is more likely to utilize larger ponds in the study area for breeding. Wetland mitigation, as described in the Wetland Discipline Report, will also provide possible replacement habitat.

There will be no direct effects to special status wildlife species from converting shrub/grass/herbaceous habitat to a developed land cover type since none of the special status species that occur or that may occur in the study area depends on this habitat type.

Noise associated with construction activity may affect bald eagles at the one nest site within a 1-mile distance of areas where pile driving will occur. Noise can disturb nesting bald eagles. Noise can cause adult eagles to flush from the nest, leaving either eggs or young eagles exposed to weather and predators, and in extreme cases, can cause bald eagles to abandon their nest. We will avoid noise effects to this nest by implementing the avoidance and minimization measures described in Appendix A.

How would the No Build Alternative affect wildlife habitat connectivity?

Under the No Build Alternative, the existing condition for wildlife habitat connectivity in the study area would not change.

How will the Build Alternative affect wildlife habitat connectivity?

Under the Build Alternative, temporary construction effects to wildlife habitat connectivity will occur within the study area. However, we will preserve connectivity in the long term.

The Build Alternative includes reconstructing the southbound lanes of I-405 in what is currently the median. This will necessitate construction of a new tunnel under the BNSF ROW in the vicinity of the existing Wilburton Tunnel. WSDOT will convert the existing tunnel to one of its facilities.

During construction, the new tunnel will lack vegetative cover; however, once construction is completed, we will reestablish vegetation and over time, plant communities with characteristics similar to the existing condition will return. The new tunnel will

continue to provide wildlife habitat connectivity over and across the southbound lanes.

WSDOT will also widen the northbound bridge over the BNSF ROW to accommodate an additional lane of the interstate. This may affect the short-term use of this area by wildlife, as animals will tend to avoid the area due to increased levels of human activity. However, we do not expect this aspect of the project to alter the long-term suitability of this area for wildlife use.

Removing the vegetated median and constructing a retaining wall between the south- and northbound lanes in the vicinity of the existing Wilburton Tunnel may reduce the success rate with which animals attempt to cross the interstate by crossing the lanes of traffic. The retaining wall could trap animals attempting to cross, forcing them to either travel along the interstate, increasing the risk of collision with vehicles, or forcing them to return in the direction from which they came.

The Build Alternative may also temporarily affect wildlife using the SE 8th Street underpass to travel from one side of the interstate to the other. This may occur if animals avoid the area due to human activity associated with construction, particularly if construction were to occur at night.

Does the project have other effects that could be delayed or distant from the project?

The permanent loss of wildlife habitat in the study area may cause the displacement of wildlife into neighboring habitats. Depending upon the ability of the neighboring habitat to support additional wildlife, this displacement may lead to crowding of wildlife in the habitat, which could in turn cause a decrease in habitat quality. In the long term, the proposed project may result in a decrease in the amount of wildlife that the wildlife habitat in the study area can support.

We do not anticipate indirect effects to wildlife habitat connectivity since the new tunnel will maintain habitat connectivity in the study area. The addition of traffic lanes and increases in the volume of traffic in the study area will make I-405 more difficult for animals that do not use the connective corridor to cross, and this may lead to a long-term increase in wildlife mortality from vehicle collisions.

Did we consider potential cumulative effects for the Build and No Build Alternatives?

WSDOT did not evaluate cumulative effects for this discipline. A report of cumulative effects is not necessary for every discipline studied for NEPA and SEPA documentation. The disciplines that we studied for cumulative effects are Air Quality, Surface Water, Fish and Aquatic Habitat, and Wetlands. We present the cumulative effects for these disciplines in the Cumulative Effects Analysis Discipline Report.

Measures to Avoid or Minimize Project Effects

How will we avoid or minimize adverse effects from construction?

We will avoid or minimize effects to upland vegetation and wildlife from construction by following the BMPs and avoidance and minimization measures described in Appendix A, and by taking the following actions:

- Providing vegetative cover in the potential wildlife corridor that would exist above the new tunnel.
- Planting native shade-tolerant vegetation in areas under the elevated roadway and ramps, where feasible and practical.
- Avoiding pile-driving activities within one mile of an active bald eagle nest during the early nesting season.

Before construction begins, we will avoid or minimize potential effects to bald eagles by determining whether the bald eagle nest located within 1 mile of the project footprint is active. We will also obtain current PHS data to determine if any new nest sites have been established and to determine if any observer has documented new roosting or foraging sites. We will work with WDFW to avoid and minimize effects that may occur during construction and operation of the project if we find any of these bald eagle use areas to be located within any of the following distances relative to the study area:

Typical stream in the study area

- Within 0.25 mile of the study area and the study area is not within line of sight of the nest;
- Within 0.5 mile of the study area and the study area is within line of sight of the nest; or
- Within 1.0 mile of an area where either blasting or pile driving would occur.

In consultation with WDFW, we may also implement the following measures to avoid or minimize effects, including:

- Setting timing restrictions on construction activities that may cause disturbance so that activities occur outside of the nesting season (January 1 through August 15).
- Installing noise barriers.
- Protecting perch trees from removal.
- Installing or establishing visual barriers, for example, by planting trees.

If the project is located within 800 feet of any bald eagle nests or roosts, we will work with WDFW to develop a management plan for the bald eagle nest or roost.

In addition, we will consult with appropriate federal and state agencies to discuss ways to reduce potential harm to migratory birds (including songbirds) by minimizing the amount of vegetation clearing during the spring nesting season. We will also consult with appropriate federal and state agencies if structures that may contain nests of migratory birds will be removed during the nesting season.

Will we need to mitigate any unavoidable negative effects?

Yes. Unavoidable negative effects will occur in wetlands. As discussed in detail in the Wetlands Discipline Report prepared for this project, we will replace wetlands to achieve no net loss of habitat or function.

Under the Build Alternative, there will also be permanent loss of upland vegetation in the study area.

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Appendix A

Avoidance and Minimization Measures

Avoidance and Minimization Measures

The following sections describe the established design and construction practices that WSDOT will include to avoid or minimize effects to the various environmental resources during both the construction and operation phases of the project.

Project Measures to Avoid or Minimize Effects During Construction

Design elements, such as modifications to boundaries of areas that can be affected, have been incorporated into the project specifications, construction plans, and procedures, to help avoid or minimize most potential construction impacts. When appropriate, monitoring will be conducted to ensure that these design and construction measures are effective.

Measures for Geology, Soils, and Groundwater

- WSDOT will prepare and implement a Temporary Erosion and Sedimentation Control (TESC) plan consisting of operational and structural measures to control the transport of sediment. Operational measures include removing mud and dirt from trucks before they leave the site, covering fill stockpiles or disturbed areas, and avoiding unnecessary vegetation clearing. Structural measures are temporary features used to reduce the transport of sediment, such as silt fences and sediment traps.
- WSDOT will reduce degradation of moisture-sensitive soils by limiting major earthwork to the drier, late spring through early fall construction season; by maintaining proper surface drainage to avoid ponding of surface water or groundwater; by minimizing ground disturbance through limiting the use of heavy equipment, limiting turns, and/or not tracking directly on the subgrade; and by covering the final subgrade elevation with a working mat of crushed rock and/or geotextile for protection. Mixing a soil admix such as cement into the subgrade may also add strength and stabilize the ground.
- WSDOT will determine acceptable limits for off-site construction-related ground vibration before construction begins and demonstrate that off-site ground vibrations are within the limits set for the project through the use of vibration-monitoring equipment.
- WSDOT will identify areas subject to shaking from a large earthquake and will mitigate risks using ground modifications or other procedures identified in the WSDOT Geotechnical Design Manual.
- WSDOT will implement construction procedures identified in the geotechnical investigation to maintain or enhance slope stability in areas potentially underlain by landslide-prone soils.
- WSDOT will protect the Kelsey Creek aquifer from contamination by construction-related spills by development and implementation of BMPs and a Spill Prevention Control and

Countermeasures plan (SPCCP). The SPCC will specifically address fuel spills from vehicles and from spills of other chemicals commonly transported over I-405. Spill response equipment will be located at regular and specified intervals within the project area for minimizing countermeasure response times.

- WSDOT will ensure only clean fill is imported and placed for the project and will require documentation for fill brought onto the site from the supplier certifying that the fill does not exceed Washington State soil cleanup standards. If documentation is not available, testing of imported fill soils will be required prior to placement. Suspect soils encountered during project construction will be tested and, where necessary, removed from the site and disposed of in accordance with Washington State regulations.
- WSDOT will identify and develop staging areas for equipment repair and maintenance away from all drainage courses. Washout from concrete trucks will not be dumped into storm drains or onto soil or pavement that carries stormwater runoff. A wash down area for equipment and concrete trucks will be designated and the use of thinners and solvents to wash oil, grease, or similar substances from heavy machinery or machine parts will be prohibited.
- WSDOT will obtain a NPDES (National Pollutant Discharge Elimination System) permit and will conduct a regular program of testing and lab work to ensure that water encountered during construction meets the water quality standards specified in the NPDES permit.
- WSDOT will to meet the NPDES water quality standards prior to the discharge of the encountered water to a surface water body, such as Kelsey Creek. If necessary, water quality will be improved, such as by using sediment ponds to allow sediment to settle out prior to discharge.
- If it is necessary to install seepage drains to control seepage for retaining walls and fill embankments, WSDOT will include special provisions in the design to discharge drain flow back into affected areas, including wetlands.

Measures for Water Quality

In addition to measures for geology, soils, groundwater, and for hazardous materials that are protective of water quality, the following measures would be implemented for water quality.

- WSDOT will identify and develop staging areas for equipment repair and maintenance away from all drainage courses.
- Washout from concrete trucks will not be dumped into storm drains or onto soil or pavement that carries stormwater runoff.
- Thinners and solvents will not be used to wash oil, grease, or similar substances from heavy machinery or machine parts.
- WSDOT will designate a wash down area for equipment and concrete trucks.

Measures for Wetlands

- WSDOT will protect, preserve, and enhance wetlands in the project area during the planning, construction, and operation of transportation facilities and projects consistent with USDOT Order 5660.1A, Executive Order 11990, and Governor's Executive Orders EO 89-10 and EO 90-04.
- WSDOT's project-level design and environmental review has included avoidance, minimization, restoration, and compensation of wetlands. WSDOT will implement these measures prior to or concurrent with adverse effects on wetlands, to reduce temporal losses of wetland functions.
- WSDOT will follow guidance contained in the wetlands section of the WSDOT Environmental Procedures Manual (WSDOT 2004a), which outlines the issues and actions to be addressed prior to authorizing work that could affect wetlands.
- WSDOT will use high-visibility fencing to clearly mark wetlands to be avoided in the construction area.

Measures for Upland Vegetation and Wildlife

- WSDOT will ensure mitigation measures established in the I-405 Corridor EIS will be implemented on the Bellevue Nickel Improvement Project.
- WSDOT will prepare and implement a revegetation plan. In addition, areas with mixed forest will not be removed for temporary use (i.e., construction staging). If an area of mixed forest must be removed for roadway construction, it will be replaced with plantings of native tree and shrub species within the affected area.
- WSDOT will adhere to project conditions identified in the Biological Assessment and agency concurrence letters.
- WSDOT will limit construction activity to a relatively small area immediately adjacent to the existing roadway to minimize vegetation clearing and leave as many trees as possible.

Measures for Fisheries and Aquatic Resources

- WSDOT will implement construction BMPs (such as silt fencing or sedimentation ponds) to avoid disturbing sensitive areas during the development and use of any staging areas, access roads, and turnouts associated with resurfacing activities.
- WSDOT will not allow in-water work to occur except during seasonal work windows established to protect fish.
- WSDOT will require that all stormwater treatment wetland/detention facilities are sited and constructed at a sufficient distance from named and unnamed streams so no grading or filling in the streams or the streamside zones will be required.

Measures for Air Quality

- WSDOT will require preparation and implementation of a Fugitive Dust Control Plan in accordance with the Memorandum of Agreement between WSDOT and PSCAA Regarding Control of Fugitive Dust from Construction Projects (October 1999).
- During dry weather, exposed soil will be sprayed with water to reduce emissions of and deposition of particulate matter (PM_{10}).
- WSDOT will provide aequate freeboard (space from the top of the material to the top of the truck), cover truckloads, and, in dry weather, wet materials in trucks to reduce emission of and deposition of particulate matter during transport.
- WSDOT use wheel washers to remove particulate matter that would otherwise be carried offsite by vehicles to decrease deposition of particulate matter on area roadways.
- WSDOT will remove particulate matter deposited on public roads to reduce mud on area roadways.
- WSDOT will cover or spray with water any dirt, gravel, and debris piles during periods of high wind when the stockpiles are not in use to control dust and transmissions of particulate matter.
- WSDOT will route and schedule construction trucks to reduce travel delays and unnecessary fuel consumption during peak travel times, and therefore reduce secondary air quality impacts (i.e. emissions of carbon monoxide and nitrogen oxides) that result when vehicles slow down to wait for construction trucks.

Measures for Noise

- Noise berms and barriers will be erected prior to other construction activities to provide noise shielding.
- The noisiest construction activities, such as pile driving, will be limited to between 7 AM and 10 PM to reduce construction noise levels during sensitive nighttime hours.
- Construction equipment engines will be equipped with adequate mufflers, intake silencers, and engine enclosures.
- Construction equipment will be turned off during prolonged periods of nonuse to eliminate noise.
- All equipment will be maintained appropriately and equipment operators will be trained in good practices to reduce noise levels.
- Stationary equipment will be stored away from receiving properties to decrease noise.
- Temporary noise barriers or curtains will be constructed around stationary equipment that must be located close to residences.
- Resilient bed liners will be required in dump trucks to be loaded on site during nighttime hours.

- WSDOT use Occupational Safety and Health Administration (OSHA)-approved ambient sound-sensing backup alarms that would reduce disturbances during quieter periods.

Measures for Hazardous Materials

Known or Suspected Contamination within the Build Alternative Right of Way

- WSDOT will prepare an SPCCP that provides specific guidance for managing contaminated media that may be encountered within the right of way (ROW).
- WSDOT may be responsible for remediation and monitoring of any contaminated properties acquired for this project. WSDOT will further evaluate the identified properties before acquisition or construction occurs. Contamination in soils will be evaluated relative to the Model Toxics Control Act (MTCA).
- If WSDOT encounters an underground storage tank (UST) within the ROW, WSDOT will assume cleanup liability for the appropriate decommissioning and removal of USTs. If this occurs, WSDOT will follow all applicable rules and regulations associated with UST removal activities.
- WSDOT will conduct thorough asbestos-containing material/lead paint building surveys by an Asbestos Hazard Emergency Response Act (AHERA)-certified inspector on all property structures acquired or demolished. WSDOT will properly remove and dispose of all asbestos-containing material/lead-based paint in accordance with applicable rules and regulations.
- Construction waste material such as concrete or other harmful materials will be disposed of at approved sites in accordance with Sections 2-01, 2-02, and 2-03 of the WSDOT Standard Specifications.
- WSDOT may acquire the responsibility for cleanup of any soil or groundwater contamination encountered during construction (that must be removed from the project limits) within WSDOT ROW. Contamination will be evaluated relative to Model Toxics Control Act (MTCA) cleanup levels.
- WSDOT will consider entering into pre-purchaser agreements for purpose of indemnifying itself against acquiring the responsibility for any long-term cleanup and monitoring costs.
- All regulatory conditions imposed at contaminated properties (e.g., Consent Decree) associated with construction will be met. These conditions could include ensuring that the surrounding properties and population are not exposed to the contaminants on the site: i.e., WSDOT will ensure that the site is properly contained during construction so that contaminants do not migrate offsite, thereby protecting the health and safety of all on-site personnel during work at the site.

Known or Suspected Contamination Outside of the Right of Way

- Contaminated groundwater originating from properties located up-gradient of the ROW could migrate to the project area. WSDOT generally will not incur liability for groundwater contamination that has migrated into the project footprint as long as the agency does not

acquire the source of the contamination. However, WSDOT will manage the contaminated media in accordance with all applicable rules and regulations.

Unknown Contamination

- If unknown contamination is discovered during construction, WSDOT will follow the SPCCP as well as all appropriate regulations.

Worker and Public Health and Safety and other Regulatory Requirements

The WSDOT will comply with the following regulations and agreements:

- State Dangerous Waste Regulations (Chapter 173-303 WAC);
- Safety Standards for Construction Work (Chapter 296-155 WAC);
- National Emission Standards for Hazardous Air Pollutants (CFR, Title 40, Volume 5, Parts 61 to 71);
- General Occupational Health Standards (Chapter 296-62 WAC); and
- Implementing Agreement between Ecology and WSDOT Concerning Hazardous Waste Management (April 1993).

Hazardous Materials Spills During Construction

- WSDOT will prepare and implement a SPCCP to minimize or avoid effects on human health, soil, surface water and groundwater.

Measures for Traffic and Transportation

- WSDOT will coordinate with local agencies and other projects to prepare and implement a Traffic Management Plan (TMP) prior to making any changes to the traffic flow or lane closures. WSDOT willl inform the public, school districts, emergency service providers, and transit agencies of the changes ahead of time through a public information process. Pedestrian and bicycle circulation will be maintained as much as possible during construction.
- Prior to and during construction, WSDOT will implement strategies to manage the demand on transportation infrastructure. These transportation demand management strategies will form an important part of the construction management program and will be aimed at increasing public awareness and participation in HOV travel. The major focus will be on expanding vanpooling and van-share opportunities. Other elements of the transportation demand management plan may include:
    - increased HOV awareness and public information, and
    - work-based support and incentives.

Measures for Visual Quality

- WSDOT will follow the I-405 Urban Design Criteria. Where the local terrain and placement of light poles allow, the WSDOT will reduce light and glare effects by shielding roadway lighting and using downcast lighting so light sources will not be directly visible from residential areas and local streets.
- WSDOT will restore (revegetate) construction areas in phases rather than waiting for the entire project to be completed.

Measures for Neighborhoods, Businesses, Public Services and Utilities

- WSDOT will prepare and implement a transportation management plan (TMP). If local streets must be temporarily closed during construction, WSDOT will provide detour routes clearly marked with signs.
- WSDOT will coordinate with school districts before construction.
- WSDOT will implement and coordinate the TMP with all emergency services prior to any construction activity.
- WSDOT will coordinate with utility providers prior to construction to identify conflicts and resolve the conflicts prior to or during construction. Potential utility conflicts within WSDOT ROW will be relocated at the utility's expense prior to contract award.
- WSDOT will prepare a consolidated utility plan consisting of key elements such as existing locations, potential temporary locations and potential new locations for utilities; sequence and coordinated schedules for utility work; and detailed descriptions of any service disruptions. This plan will be reviewed by and discussed with affected utility providers prior to the start of construction.
- WSDOT will field verify the exact locations and depths of underground utilities prior to construction.
- WSDOT will notify neighborhoods of utility interruptions by providing a scheduled of construction activities in those areas.
- WSDOT will coordinate with utility franchise holders and provide them with project schedules to minimize the effects of utility relocations (for example, equipment procurement times, relocation ahead of construction, etc.)
- WSDOT will notify and coordinate with fire departments for water line relocations that may affect water supply for fire suppression, and establish alternative supply lines prior to any breaks in service; and to ensure that fire departments can handle all calls during construction periods and to alleviate the potential for increased response times.
- WSDOT will notify and coordinate with police departments to implement crime prevention principles and to ensure that they have adequate staffing to provide traffic and pedestrian control.

- WSDOT will maintain access to businesses throughout the construction period through careful planning of construction activities and an awareness of the needs to provide adjacent properties with reasonable access during business hours. As part of construction management, WSDOT will prepare access measures. WSDOTT will make provisions for posting appropriate signs to communicate the necessary information to potential customers.
- WSDOT will keep daytime street closures to a minimum to provide access for businesses during regular business hours.

Measures for Cultural Resources

- WSDOT will prepare an Unanticipated Discovery Plan for the project that WSDOT will follow. This will avoid or minimize unanticipated effects to historic, cultural, and archaeological resources.

Project Measures to Avoid or Minimize Effects During Project Operation

The following sections describe the measures that WSDOT will implement during project operation.

Measures for Surface Waters and Water Quality

- WSDOT will follow the Highway Runoff Manual for both the design and implementation of stormwater facilities. WSDOT is not required to manage flow where drainage is directly to Mercer Slough. Where drainage is to a tributary to Mercer Slough, WSDOT will construct a stormwater management system that does provide flow control.

Measures for Fisheries and Aquatic Resources

- WSDOT will compensate for adverse effects to fish habitat and aquatic resources by providing in-kind mitigation. This in-kind mitigation will take the form of on-site, off-site, or a combination of on- and off-site mitigation.
- Off-site mitigation could include planting native riparian vegetation outside of the study area in areas where restoring native riparian buffers may have a greater benefit to fish and aquatic species. Mitigation could be concentrated along streams with high fish use where important stream processes and functions related to riparian buffers (for example, large woody debris [LWD] recruitment levels, litter fall, and bank stabilization) are impaired.
- On-site/off-site mitigation could include installing in-stream habitat features (for example, boulders or LWD) in the streambed downstream of the project footprint to increase the habitat complexity of the affected waterbody.

- Ongoing maintenance (during and post-construction) of stormwater treatment and detention facilities by WSDOT will not include the application of any chemical weed control agents (e.g., herbicides).

Measures for Upland Vegetation and Wildlife

- WSDOT will replace areas of mixed forest that will be permanently removed for roadway construction with plantings of native tree and shrub species within the affected area.

Appendix B

U.S. Fish and Wildlife Service Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in Western Washington

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN IN WESTERN WASHINGTON AS PREPARED BY THE U.S. FISH AND WILDLIFE SERVICE WESTERN WASHINGTON FISH AND WILDLIFE OFFICE

(Revised October 8, 2004)

KING COUNTY

LISTED

Wintering bald eagles (*Haliaeetus leucocephalus*) occur in the county. Wintering activities occur from October 31 through March 31.

There are five bald eagle communal winter night roosts located in the county.

There are two bald eagle wintering concentrations located in the county along the Skykomish-Beckler-Tye Rivers and Foss River.

There are 38 bald eagle nesting territories located in the county. Nesting activities occur from about January 1 through August 15.

Bull trout (*Salvelinus confluentus*) occur in the county.

Canada lynx (*Lynx canadensis*) may occur in the county.

Gray wolves (*Canis lupus*) may occur in the county.

Grizzly bears (*Ursus arctos* = *U. a. horribilis*) may occur in the county.

Marbled murrelets (*Brachyramphus marmoratus*) occur in the county. Nesting murrelets occur from April 1 through September 15.

Northern spotted owls (*Strix occidentalis caurina*) occur in the county throughout the year.

Major concerns that should be addressed in your Biological Assessment of project impacts to listed species include:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

Arenaria paludicola (marsh sandwort) may occur in the county.

Castilleja levisecta (golden paintbrush) may occur in the county.

Major concerns that should be addressed in a Biological Assessment of listed plant species include:

1. Distribution of taxon in project vicinity.
2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.
3. Changes in hydrology where taxon is found.

DESIGNATED

Critical habitat for the northern spotted owl has been designated in King County.

Critical habitat for the marbled murrelet has been designated in King County.

PROPOSED

Critical habitat for the bull trout (Coastal-Puget Sound distinct population segment) has been proposed in King County.

CANDIDATE

Fisher (*Martes pennanti*) (West Coast distinct population segment)
Yellow-billed cuckoo (*Coccyzus americanus*)

SPECIES OF CONCERN

Beller's ground beetle (*Agonum belleri*)
California wolverine (*Gulo gulo luteus*)
Cascades frog (*Rana cascadae*)
Hatch's click beetle (*Eanus hatchi*)
Larch Mountain salamander (*Plethodon larselli*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Northwestern pond turtle (*Emys* (= *Clemmys*) *marmorata marmorata*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)

Tailed frog (*Ascaphus truei*)
Valley silverspot (butterfly) (*Speyeria zerene bremeri*)
Western toad (*Bufo boreas*)
Aster curtus (white-top aster)
Botrychium pedunculosum (stalked moonwort)
Cimicifuga elata (tall bugbane)